09/867859

```
=> d his

     (FILE 'HOME' ENTERED AT 09:59:35 ON 13 JUN 2001)
     FILE 'CA' ENTERED AT 09:59:46 ON 13 JUN 2001
L1 498086 S INTERFER? OR IMPURITY OR PSEUDOHEMOLY? OR PSEUDO(W)(HEMOLY? OR
          HAEMOLY?)OR PSEUDOHAEMOLY? OR (CROSSLINK? OR CROSS LINK?)(2A)(HB OR
          HEMOGLOB? OR HAEMOGLOB?)OR BLOOD(2A)SUBSTITUTE
L2  90020 S L1(6A)(DETECT? OR DETERMIN? OR MEASUR? OR MONITOR? OR ASSAY? OR
          ANALY? OR TEST? OR QUANIF? OR ESTIMAT? OR SENSE# OR SENSOR OR SENSING
          OR IDENTIF? OR PROBE# OR PROBING OR CORRECT? OR CALIBRAT?)
L3    586 S L2 AND(HEMOLY? OR HAEMOLY? OR (CROSSLINK? OR CROSS LINK?)(2A)
          (HEMOGLOB? OR HAEMOGLOB?)OR BLOOD(2A)SUBSTITUTE)
L4    124 S L3 AND(NONHEM? OR NON HEME OR COLORI? OR PHOTOMET? OR INFRARED OR
          INFRA RED OR SPECTROPHOTOM? OR VISIBLE)
L5    209 S L2 AND((CROSSLINK? OR CROSS LINK?)(2A)(HEMOGLOB? OR HAEMOGLOB?)OR
          BLOOD(2A)SUBSTITUTE)
L6      7 S L5 AND(REDUC? OR ELIMINAT? OR CORRECT? OR CALIBRAT?)(5A)(INTERFER?
          OR IMPURITY)
L7   2777 S L2 AND(ALGORITHM OR REGRESSION OR EQUATION)
L8    372 S L7 AND(REDUC? OR ELIMINAT? OR CORRECT? OR CALIBRAT?)(5A)(INTERFER?
          OR IMPURITY)
L9     89 S L8 AND(NONHEM? OR NON HEME OR COLORI? OR PHOTOMET? OR INFRARD OR
          INFRA RED OR SPECTROPHOTOM? OR VISIBLE)
L10     3 S L8 AND TURBID?
L11   215 S L4,L6,L9-10
L12   176 S L11 NOT PY>1997
L13    39 S L11 NOT L12
L14    13 S L13 AND BLOOD SUBSTITUTE
L15     1 S L13 AND PATENT/DT NOT L14 AND DUAL
     FILE 'MEDLINE' ENTERED AT 10:32:53 ON 13 JUN 2001
L16    50 S L12
L17     3 S PSEUDOHEMOLY? OR PSEUDO(W)(HEMOLY? OR HAEMOLY?)
     FILE 'BIOSIS' ENTERED AT 10:36:10 ON 13 JUN 2001
L18    40 S L12
L19     3 S L17
     FILE 'CA, MEDLINE, BIOSIS' ENTERED AT 10:39:29 ON 13 JUN 2001
L20   221 DUP REM L12 L14 L15 L16 L17 L18 L19 (65 DUPLICATES REMOVED)

=> d l20 bib,ab 1-221

L20  ANSWER 11 OF 221  CA  COPYRIGHT 2001 ACS
AN   129:64902  CA
TI   Dual irradiation method for eliminating hemolysis interference in
     photometric alpha-amylase determination
IN   Cybulski, Raymond Leon
PA   Dade International Inc., USA
SO   U.S., 4 pp.
PI   US 5766872        A    19980616       US 1995-562547   19951120
AB   A method for increasing the accuracy of photometric-based assays for α-
     amylase by subjecting a sample to a secondary interrogating beam of radiat-
     ion at a wavelength distinguishable from a primary interrogating beam of
     radiation.  The secondary interrogating beam of radiation is indicative of
     an interfering reaction occurring in the absence of analyte at the primary
     wavelength.  The secondary wavelength is outside the absorption spectrum of
     the analyte of interest. This secondary radiation beam's absorption is
     proportional to the interfering reaction at the primary wavelength.

L20  ANSWER 12 OF 221  CA  COPYRIGHT 2001 ACS
```

AN 129:341339 CA
TI CO-Oximetry interference by perflubron emulsion: comparison of hemolyzing and nonhemolyzing instruments
AU Shepherd, A. P.; Steinke, J. M.
CS Department of Physiology, University of Texas Health Science Center, San Antonio, TX, 78284-7756, USA
SO Clin. Chem. (Washington, D. C.) (1998), 44(10), 2183-2190
AB Perflubron emulsion is expected to be in clin. use soon as a non-Hb blood substitute. A preliminary report indicates that this new oxygen-carrying fluorocarbon interferes with the measurements of CO-oximeters. Therefore, we have quantified the interference that perflubron causes in the measurements of eight widely used oximeters and CO-oximeters. The AVL Omni 6, CC270, IL482, IL682, and OSM3 are conventional CO-oximeters that hemolyzed blood samples before analyzing them. In contrast, the AVOXimeters 1000 and 4000 and the IL Synthesis 35 make their measurements without hemolyzing the samples. Because perflubron is expected to be used most frequently on surgical patients in a hemodiluted state, we conducted all tests on human erythrocytes suspended in plasma at a Hb concn. standardized to 70 g/L (7 g/dL) and with oxyHb satn. set at 97%. When perflubron was added to the blood samples, the nonhemolyzing CO-oximeters were not seriously affected by perflubron concns. in and above the therapeutic range. In contrast, some of the hemolyzing CO-oximeters experienced concn.-dependent interference in their measurements of all analytes except total Hb concn. Thus, we conclude that the nonhemolyzing CO-oximeters provide an effective means for detg. whether a hemolyzing CO-oximeter is experiencing clin. important interference in blood from patients receiving perflubron.

L20 ANSWER 20 OF 221 CA COPYRIGHT 2001 ACS
AN 127:322580 CA
TI A simple method for the detection and the "a posteriori" correction of the interference of sulfide on phosphorus measurements
AU Gasol, Josep M.; Zehnder, Alexander J. B.
CS Institute de Ciencies del Mar, CSIC, Barcelona, E-08039, Spain
SO Sci. Mar. (1997), 61(2), 213-219 CODEN: SCIMEM; ISSN: 0214-8358
AB The interference by hydrogen sulfide in phosphorus detn. in seawater by the Murphy & Riley method is reported. Free sulfide can be found in a variety of saline systems, from partially closed fjords to eutrophic estuaries, river saline wedges, saline lagoons, etc. in concns. ranging from 0.02 to 10 mM and, thus, may be present in water samples without the analysts suspicion. The effects of sulfide concns. ranging from 0.005 to 0.7 mM on the measurement of phosphorus concns. from 10 μg P to 1.5 mg PO4-P/L were tested. The product and the dynamics of the interference were characterized spectrophotometrically and a simple method was developed to detect the interference "a posteriori" by computing the ratio between the absorbances at 350 and 690 nm. If sulfide has been measured in parallel, the absorbances, even those that have had high interference, can be cor. to values without the interference using the equations presented. The routine use of this method is suggested whenever dealing with samples that could have some sulfide in soln.

L20 ANSWER 25 OF 221 CA COPYRIGHT 2001 ACS
AN 124:197735 CA
TI Method for analyzing a medical sample, avoiding interference caused by hemolysis
IN Wild, Thomas; Weber, Friederike; Berding, Christoph; Kleider, Wilhelm
PA Boehringer Mannheim Gmbh, Germany
SO Eur. Pat. Appl., 14 pp.

PI EP 695805 A2 19960207 EP 1995-112145 19950802
PRAI DE 1994-4427492 19940803
AB The goal of this invention is to provide an anal. method that makes it possible to det. the measuring error due to contaminating constituents in a sample of hemolyzed blood with improved accuracy and reduced effort compared to conventional correction methods. Thus, before the photometric detn. of the desired analyte is done, the sample is subjected to a pre-reaction in which the hemolysis degree of the sample is detd., and then the subsequently detd. value of the desired analyte is cor. by a value that is detd. from the correlation of the hemolysis degree to the measurement error due to the interfering components. This correction method can be used in the detn. of, e.g., glutamate-oxaloacetate transaminase, proteins, K+, cholesterol, uric acid, triglycerides, Cl-, fatty acids, etc.

L20 ANSWER 28 OF 221 CA COPYRIGHT 2001 ACS
AN 125:315511 CA
TI Interference assessment and correction in the partial least squares regression method for multicomponent determination by UV spectrophotometry
AU Zhang, Peixun; Littlejohn, David
CS Department of Pure and Applied Chemistry, University of Strathclyde, Thomas Graham Building, 295 Cathedral Street, Glasgow, G1 1XL, UK
SO Chemom. Intell. Lab. Syst. (1996), 34(2), 203-215
AB Improvements have been made to the traditional partial least squares (PLS) regression and cross-validation procedures. The new PLS procedure copes more effectively with non-analyte interference in multicomponent detns. and provides an est. of the interference spectrum. The interference spectrum can be used to partially or quant. correct the measured spectrum before detn. of analyte concns. Hence the accuracy of anal. is improved. The modified cross-validation procedure reduces computer time by a factor of three, for the assessment of the no. of principal components, compared with the conventional method.

L20 ANSWER 30 OF 221 CA COPYRIGHT 2001 ACS
AN 125:285066 CA
TI A generalized algorithm for generation of orthogonal polynomials for equal and unequal intervals and its use for analytical spectrometric methods
AU Korany, Ezzat A.; Korany, Mohammed A.; El-Yazbi, Fawzy A.; Blaih, Salah M.
CS Institute Graduate Studies and Research, University Alexandria, Alexandria, Egypt
SO Alexandria Eng. J. (1996), 35(3), B63-B71 CODEN: AEJAEB; ISSN: 1110-0168
AB The use of orthogonal polynomials is popular in spectrometric data fitting and anal. The use of these polynomials at equal and unequal intervals is considered to be very efficient in correcting background interference in different spectrometric techniques. Examples of these uses are; UV-Visible spectrophotometry, spectrofluorometry and spectropolarimetry. A generalized algorithm that generates orthogonal polynomials of any degree, any segment length, and for equal and unequal intervals is presented and applied for spectrometric data anal. This algorithm could be a very useful tool for computerized anal. of spectrometric data taken for single component, 2-component, and multicomponent systems.

L20 ANSWER 32 OF 221 CA COPYRIGHT 2001 ACS
AN 125:193760 CA
TI Spectrophotometric determination of Allura Red (R40) in soft drink powders using the universal calibration matrix for partial least squares multivariate method
AU Lopez-de-Alba, Pedro Luis; Wrobel-Kaczmarczyk, Katarzyna; Wrobel, Kazimierz; Lopez-Martinez, Leticia; Hernandez, Judith Amador

CS Instituto de Investigaciones Cientificas, Universidad de Guanajuato, Guanajuata, 36000, Mex.
SO Anal. Chim. Acta (1996), 330(1), 19-29
AB The Kool-Aid powders (Kraft General Foods) contain one or two of the following dyes: Allura Red (FD and C Red-40, R40), Sunset Yellow (FD and C Yellow-6, Y6) Tartrazine (FD and C Yellow-5, Y5), Erythrosine B (FD and C Red-3, R3), Amaranth (FD and C Red-2, R2) and Brilliant Blue FCF (FD and C Blue 1, B1), depending on the taste of the drink. In this work the "universal" calibration matrix is proposed for the detn. of R40 in soft drink powders by partial least squares method using spectrophotometric data. The training set of samples consists of 23 solns.: three of them contain only R40 at different concns. and the rest of them are the binary mixts. of R40 with one of the following dyes: R3, R2, Y5 or Y6; all at the concns. varying in the range 2-22 mg/l (exception: R3 2-12 mg/L). Good anal. performance of R40 calibration was obtained (R2 = 0.9993, RMSD = 0.2125, REP = 2.20%) and this calibration matrix was applied to the anal. of the real samples contg. only one dye (R40) and to the samples contg. also other dyes, commonly used as the color additives in drink powders. The results obtained were compared with the results of the official spectrophotometric method and with the results of PLS algorithm for different binary dye calibration matrixes. A good statistical agreement was obtained in each case, which confirms that some interferences occurring in spectrophotometric detns. can be eliminated using PLS algorithm and including some possibly interfering compds. in calibration samples.

L20 ANSWER 36 OF 221 CA COPYRIGHT 2001 ACS
AN 123:159810 CA
TI Quantitative Analysis of Bandpass-Filtered Fourier Transform Infrared Interferograms
AU Mattu, Mutua J.; Small, Gary W.
CS Center for Intelligent Chemical Instrumentation, Ohio University, Athens, OH, 45701-2979, USA
SO Anal. Chem. (1995), 67(13), 2269-78
AB The feasibility of performing quant. anal. with short segments of bandpass-filtered FTIR interferograms is demonstrated. The protocol developed in this work addresses four limitations that hinder the use of FTIR spectroscopy in nonlab. applications: (1) the need for a rugged, low-cost, and reliable spectrometer, (2) the lack of representative background spectra for use in acquiring absorbance spectra of the target analyte, (3) the presence of overlapping spectral bands that interfere with the analyte detn., and (4) the difficulty in obtaining useful information from data collected near the limit of detection. Spectral information pertaining to a specific analyte band of interest is isolated directly from a short interferogram segment by the application of narrow-bandpass digital filters. When processed in this way, the filtered interferogram segments contain compd.-specific information that can be used for quant. anal. Successful use of a univariate calibration procedure with filtered interferogram data of benzene and nitrobenzene of varying concns. is demonstrated. Calibrations based on filtered interferogram segment magnitudes vs. concn. yield models with values of R2 >99%. These results are obtained without the use of a sep. background or ref. interferogram. This interferogram-based anal. is shown to perform analogously to a conventional spectral-based anal., with the interferogram method being more efficient in terms of data collection and computational requirements.

L20 ANSWER 37 OF 221 CA COPYRIGHT 2001 ACS
AN 122:321004 CA
TI Online Detection and Identification Interferents in Multivariate

Predictions of Organic Gases Using FT-IR Spectroscopy
AU Ruyken, Marco M. A.; Visser, Joop A.; Smilde, Age K.
CS Analytical Development Department, Solvay Duphar B.V., Weesp, 1380 DA, Neth.
SO Anal. Chem. (1995), 67(13), 2170-9
AB One of the most serious problems that can occur when a multivariate model is used to analyze the compn. of an unknown mixt. is the presence of an unexpected constituent, not modeled in the calibration phase. The interferent will almost certainly influence predicted concns. of the modeled constituents, which leads to erroneous and, more seriously, misleading results. Usually, a recalibration, building a new calibration model in which the interferent is included, will be necessary. However, in many applications of multivariate calibration, recalibration will be possible only if an unambiguous identification of the interferent can be made. How spectral residuals resulting from a multivariate prediction can be used to detect and identify unknown interferents is described. Interferent identification is performed by matching the residual spectrum with a library of residual spectra. This library was built by processing members of a regular spectral library by the calibration model and storing the resulting residual spectra. After successful identification, a straightforward procedure can be used to correct concns. of the modeled constituents, without a recalibration. Methods are demonstrated using a relatively simple principal component regression calibration model to predict concns. of org. vapors and gases in ambient air with FT-IR spectroscopy. In addn., the influence of different interferents on predicted concns. of the modeled constituents is described.

L20 ANSWER 38 OF 221 MEDLINE
AN 95205450 MEDLINE
TI Quantitative evaluation of heme biosynthetic pathway parameters as biomarkers of low-level lead exposure in rats.
AU Simmonds P L; Luckhurst C L; Woods J S
CS Department of Environmental Health, University of Washington, Seattle.
SO JOURNAL OF TOXICOLOGY AND ENVIRONMENTAL HEALTH, (1995 Mar) 44 (3) 351-67. Journal code: KAA; 7513622. ISSN: 0098-4108.
AB Erythrocyte delta-aminolevulinic acid dehydratase (ALAD) activity, erythrocyte zinc protoporphyrin (ZPP)/heme ratio, and urinary coproporphyrin (UC) concentration have been employed as biological indicators of moderate-to high-level lead exposure, corresponding to blood levels in excess of 50 micrograms/dl, in human subjects. The comparative efficacy of these measures as indicators of lead exposure consistent with sustained lower blood lead levels has not been systematically evaluated. In the present studies, we examined the relative sensitivity and magnitude of response of these three bioindicators in rats during chronic exposure to 0, 100, or 1000 ppm lead as lead acetate in drinking water for up to 10 wk, followed by a 10-wk postexposure period, with weekly assessments, or during subchronic exposure to 0 or 1000 ppm lead as lead acetate in drinking water for 6 d, with daily assessments. Analysis of variance (ANOVA) was used to determine if the lead-treated rats differed from controls and to distinguish between dose groups with respect to the three biochemical indices of lead exposure. The data were normalized by conversion to Z scores in order to compare indicators with regard to magnitude of change in response to lead treatment. The order of sensitivity of each indicator was determined by considering the magnitude of the correlation coefficient (r) between the indicator and the blood lead concentration in each study. The indicators in order of decreasing sensitivity to lead in the chronic study were UC > ZPP/heme > ALAD. The indicators in order of decreasing magnitude of change in response to change in blood lead level were also UC > ZPP/heme

> ALAD. None of the heme pathway parameters was judged a satisfactory substitute for direct blood lead measurement as an indicator of low-level lead exposure. However, urinary coproporphyrin appears most useful in this respect owing to highest sensitivity and magnitude of change relative to blood lead content and relatively low variation of mean coproporphyrin levels.

L20 ANSWER 39 OF 221 CA COPYRIGHT 2001 ACS
AN 122:170329 CA
TI Simultaneous spectrophotometric determination of fat-soluble vitamins in multivitamin pharmaceutical preparations
AU Blanco, M.; Coello, J.; Iturriaga, H.; Maspoch, S.; Gomez-Cotin, T.; Alaoui-Ismaili, S.; Rovira, E.
CS Dep. Qumica, Univ. Autonoma de Barcelona, Bellaterra, E-08193, Spain
SO Fresenius' J. Anal. Chem. (1995), 351(2-3), 315-19
AB A spectrophotometric method is proposed for the simultaneous detn. of vitamins A, D and E in multivitamin pharmaceutical prepns. This is based on multiple linear regression. Most vitamins are directly extd. from the prepns. into n-hexane. Microencapsulated vitamin A prepns. require pretreatment of de-encapsulation before the vitamin is extd. The wavelength range to be used for each prepn. and the optimum spectral mode (absorbance or first-deriv.) has been chosen in order to assure correct quantitation and avoid interferences from other absorbing species also extd. by n-hexane. The results obtained were validated by simultaneous HPLC analyses for accuracy and precision.

L20 ANSWER 41 OF 221 CA COPYRIGHT 2001 ACS
AN 122:209188 CA
TI The influence of bilirubin, hemolysis and turbidity on 20 analytical tests performed on automatic analyzers. Results of an interlaboratory study
AU Grafmeyer, D.; Bondon, M.; Manchon, M.; Levillain, P.
CS Laboratoire de Biochimie, Hopital de la Croix-Rousse, Lyon, Fr.
SO Eur. J. Clin. Chem. Clin. Biochem. (1995), 33(1), 31-52
AB The director of a lab. has to be sure to give out reliable results for routine tests on automatic analyzers regardless of the clin. context. However, he may find hyperbilirubinemia in some circumstances, parenteral nutrition causing turbidity in others, and hemolysis occurring if sampling is difficult. For this reason, the Commission for Instrumentation of the Societe Francaise de Biologie Clinique (SFBC) (president Alain Feulillu) decided to look into "visible" interferences - bilirubin, hemolysis and turbidity - and their effect on 20 major tests: 13 substrates/chemistries: albumin, calcium, cholesterol, creatinine, glucose, iron, magnesium, phosphorus, total bilirubin, total proteins, triacylglycerols, uric acid, urea, and 7 enzymic activities: alk. phosphatase, alanine aminotransferase, α-amylase, aspartate aminotransferase, creatine kinase, γ-glutamyl transferase and lactate dehydrogenase measured on 15 automatic analyzers representative of those found on the French market (Astra 8, AU 510, Au 5010, AU 5000, Chem 1, CX 7, Dax 72, Dimension, Ektachem, Hitachi 717, Hitachi 737, Hitachi 747, Monarch, Open 30, Paramax, Wako 30 R) and to see how much they affect the accuracy of results under routine conditions in the lab. The study was carried out following the SFBC protocol for the validation of techniques using spiked plasma pools with bilirubin, ditauro-bilirubin, Hb (from hemolyzate) and IntralipidTM (turbidity). Overall, the following results were obtained: hemolysis affects tests the most often (34.5% of cases); total bilirubin interferes in 21.7% of cases; direct bilirubin and turbidity seem to interfere less at around 17%. The different tests are not affected to the same extent; enzyme activity is hardly affected at all; on the other hand certain major tests are extremely

sensitive, increasingly so as we go through the following: creatinine (interference of bilirubin), triacylglycerols (interference of bilirubin and Hb), glucose (interference of bilirubin), cholesterol (interference of bilirubin), phosphorus (interference of bilirubin and Hb), uric acid (interference of turbidity), iron (interference of Hb and turbidity), total proteins (interference of bilirubin, Hb and turbidity) and bilirubin (interference of Hb and turbidity). Three categories of interferences can be found: interference by addn., chem. interference and spectral interference, and the results show that not only the choice of a method is important on the analyzer, but also how this has been adapted. By looking into these conditions carefully, it is sometimes possible to find a reason for the problem and thereby a simple soln. to correct it. If the different factors are defined with care in terms of the reaction, use of a sample blank or not, choice of secondary wavelength etc., the influence of the interferences can be better kept under control. During the study we have particularly noted how poorly effective dichromatic procedures are; the choice of the secondary wavelength did not always prove useful, and thus the "corrections" were often not effective or only slightly so, or even had the contrary effect.

L20 ANSWER 47 OF 221 BIOSIS COPYRIGHT 2001 BIOSIS
AN 1993:495809 BIOSIS
TI Characterization and mathematical correction of hemolysis interference in selected Hitachi 717 assays.
AU Jay, Dennis W. (1); Provasek, Debra
CS (1) Dep. Pathol. Lab. Med., Olin E. Teague Veterans Cent., Temple, TX 76504 USA
SO Clinical Chemistry, (1993) Vol. 39, No. 9, pp. 1804-1810.
AB The effect of hemolysis on several assays performed with the Hitachi 717 was quantified by relating the amount of error to the concentration of hemoglobin. Hemolysis interference was judged clinically significant when analyte concentration varied by gt 10% from the initial value. Hemolysis interference was significant for alkaline phosphatase, aspartate amino-transferase, alpha-amylase, bilirubin, creatine kinase, gamma-glutamyl-transferase, lactate dehydrogenase, lactate dehydrogenase-1, potassium, and theophylline assays. Error (expressed in absolute terms) was linearly dependent on hemoglobin concentration and independent of the initial analyte concentration in each case, except for bilirubin and theophylline, where multiple regression analysis was required to quantify the effect. Relative error was dependent on the initial analyte concentration in all cases. Correction formulas were calculated from linear regression of absolute error vs hemoglobin concentration. Clinical application of correction formulas and mechanisms of hemolysis interference for each assay are discussed.

L20 ANSWER 53 OF 221 CA COPYRIGHT 2001 ACS
AN 120:68513 CA
TI The linear absorbances method adapted to systems with two interfering compounds. Theoretical and experimental study
AU Pascual-Marti, M. C.; Saez, Marin R.; Iranzo, Adrian J. M.
CS Fac. Quim., Univ. Valencia, Burjasot, E-46100, Spain
SO Fresenius' J. Anal. Chem. (1993), 347(8-9), 305-13
AB The paper describes the theor. and exptl. study performed to extend the application of the Linear Absorbances Method to more complex systems, which present 2 spectral interferences. The curves of collinearity are developed and a theor. study of them is carried out. The theor. equations developed are exptl. tested on the detn. of methyl orange in the presence of methyl red and cresol red and the influence of the variables involved in the

Linear Absorbance Method is studied, too. The use of couples of collinear wavelengths of the interferants allows to obtain the concn. of a compd. in the presence of 2 interfering substances.

L20 ANSWER 56 OF 221 CA COPYRIGHT 2001 ACS
AN 121:30301 CA
TI Study on the effects of "visible" interferences - bilirubin, hemolysis, turbidity - on the principle assays used in multiparametric analyzers
AU Grafmeyer, D.; Bondon, M.; Manchon, M.; Levillain, P.
CS Lab. de Biochim., Hop. de la Croix-Rousse, Lyon, 69317/04, Fr.
SO Spectra Biol. (1993), 93(4), 33-42 CODEN: SPEBEQ; ISSN: 0295-1967
AB The lab. biologist must ensure the reliability of the results from routine tests performed with multiparametric analyzers, whatever the clin. context may be. However, under certain circumstances, elevated blood bilirubin levels are noted, parenteral nutrition causes turbidity and sometimes difficult conditions of blood collection are responsible for hemolysis. This is why the authors were led to study the impact of such problems using 15 analyzers widely used in French labs. Hemolysis is the most frequent cause of interference, followed by bilirubin. All the various parameters are not affected in the same way. Enzymic activities are virtually free from such interferences. In contrast, some routine parameters are highly sensitive: e.g. glucose, creatinine, triglycerides, cholesterol, iron, uric acid, phosphorus and bilirubin. The data emphasize the importance not only of choice of the technique used in the analyzers, but also of the conditions of their suitability to the required work. Careful examn. of these conditions allowed, in certain cases, the authors' finding explanations for the difficulties encountered and proposing simple remedies. Greater attention to the definition of the various factors, reaction pattern, sample blank or other, choice of the secondary wavelength, etc., will allow better control of interferences.

L20 ANSWER 63 OF 221 CA COPYRIGHT 2001 ACS
AN 116:249984 CA
TI Environmental endotoxin measurement: the kinetic Limulus assay with resistant-parallel-line estimation
AU Milton, Donald K.; Feldman, Henry A.; Neuberg, Donna S.; Bruckner, Robin J.; Greaves, Ian A.
CS Dep. Environ. Sci. Physiol., Harvard Sch. Public Health, Boston, MA, 02115, USA
SO Environ. Res. (1992), 57(2), 212-30 CODEN: ENVRAL; ISSN: 0013-9351
AB A Limulus assay method was specifically designed for environmental endotoxin aerosols. Application of new statistical and sample prepn. methods strengthened the validity and precision of the Limulus test. Statistically, the Kinetic Limulus Assay with Resistant-parallel-line Estn. (KLARE) differed from conventional analytic methods (as used in chromogenic assays and other kinetic methods) by routinely using a diln. series of the unknown sample as well as the std. to compute potency and an est. of variance for each sample. Anal. of dose-response slopes for the std. and unknowns detected inhibition and enhancement effects without multiple assay. Concn.-dependent interference and a more complex, concn.-independent interference with the Limulus assay were detected. Resistant regression and a standardized data anal. cor. for concn.-dependent interference. Sample prepn. in a buffer eliminated concn.-independent interference and, thus, improved both the validity and the precision of potency measurements. The utility of a sample buffer and of parallel-line anal., with both turbidimetric and chromogenic lysates, was demonstrated by assay of three control std. lipopolysaccharide (LPS) and ref. LPS (EC5). The limit of detection for endotoxin was <1 pg/mL in buffer. Samples

contg. ≥10 pg/mL were measured with a coeff. of variation of approx. 6% in a single assay. Reproducibility of potency ests. for four samples over 3 days was compared on the basis of std. errors of the mean. The conventional method gave on av. a CV of 65%, while the resistant-parallel-line method gave, on av., a CV of 6%. Also, the conventional method failed to detect interference and, thus, included data from invalid assays. Conventional anal. of environmental aerosol samples was highly sensitive to the choice of diln. factor causing as much as 1000% variation in the result. By contrast, KLARE results changed by at most 30% with similar changes in initial diln. because KLARE was able to detect, and correct for, the influence of interferring compds.

L20 ANSWER 69 OF 221 CA COPYRIGHT 2001 ACS
AN 116:186699 CA
TI Advances and perspectives in near-infrared spectrophotometry
AU Drennen, James K.; Kraemer, Elizabeth G.; Lodder, Robert A.
CS Sch. Pharm., Duquesne Univ., Pittsburgh, PA, 15282, USA
SO Crit. Rev. Anal. Chem. (1991), 22(6), 443-75 CODEN: CCACBB; ISSN: 0007-8980
AB A review with 45 refs. Near-IR spectrophotometric anal. is a rapid technique that typically uses the reflectance of a solid sample at several wavelengths to det. the sample's compn. A computerized modeling process is generally used to correct for background and sample-matrix interferences. The modeling process employs a training set of samples to, in effect, "teach" the computer to recognize relationships between minute spectral features and sample compn. The contents of the training-set samples must be detd. initially by some other ref. method before applying the near-IR technique. The model developed from near-IR spectra and ref. values gives the sample compn. using a no. of linear equations. Each of these equations expresses a particular component concn. as a weighted sum of the signals obsd. at a no. of near-IR wavelengths. Instruments used for near-IR spectrophotometry can be as simple as a filter photometer or a grating monochromator. The broad spectral peaks and highly correlated wavelength vectors generally limit the no. of wavelengths used in the model. Little or no sample prepn. is required by near-IR methods, and many solid samples can be directly analyzed. Near-IR spectrophotometry has found application in agriculture, industry, biol., medicine, and even satellite remote sensing.

L20 ANSWER 73 OF 221 CA COPYRIGHT 2001 ACS
AN 115:25295 CA
TI Interference by hemolysis, icterus and lipemia in assays on the Beckman Synchron CX5 and methods for correction
AU Randall, A. G.; Garcia-Webb, P.; Beilby, J. P.
CS Dep. Clin. Biochem., Queen Elizabeth II Med. Cent., Perth, Australia
SO Ann. Clin. Biochem. (1990), 27(4), 345-52
AB As part of an evaluation of a Synchron CX5 analyzer (Beckman Instruments Inc. Brea, USA) a range of tests were examd. for interference from hemolysis, bilirubin, and lipemia. Tests investigated were urea, creatinine, urate, total protein, albumin, Ca, total bilirubin, alk. phosphatase (ALP), aspartate transaminase (AST), γ-glutamyl transferase (GGT) and inorg. phosphate. Two types of interferences were found. One type is found on other analyzers and represents anal. difficulties with the measurement of that particular analyte. The other type of interference was a consequence of the bichromatic optical system used on the CX-5. This latter group includes Hb interference in the measurement of total protein and inorg. phosphate, and bilirubin interference with the measurement of total protein, glucose, and inorg. phosphate. Lipemia interfered with total protein, total bilirubin, inorg. phosphate, urate and glucose. Alternative

and modified methods are proposed to improve the measurement of total protein, glucose, total bilirubin and inorg. phosphate. The use of the modified methods for glucose, inorg. phosphate, and total bilirubin are limited, at this time, by an error in the calcn. algorithm used by the analyzer for two step or triggered chemistries, and to a lesser extent, by a redn. in sample throughput.

L20 ANSWER 78 OF 221 CA COPYRIGHT 2001 ACS
AN 113:16997 CA
TI Multivariate spectral analysis with background interference detection and correction
AU Liang, Yizeng; Xie, Yulong; Yu, Ruqin
CS Dep. Chem. Chem. Eng., Hunan Univ., Changsha, Peop. Rep. China
SO Chin. Sci. Bull. (1989), 34(18), 1533-8 CODEN: CSBUEF
AB It is a difficult chemometric task to quantify directly the desired analyte concns. in the presence of a background interference. The conventional multicomponent anal. methods, such as ordinary least squares regression, could not directly be used in the presence of any unknown interferents. The target transformation factor anal. (TTFA) has been proposed for treating complex anal. systems contg. some interferents, but the application of TTFA requires some preconditions. An anal. signal data matrix of m samples with different component concns. is necessary for TTFA, but actually only one sample is available in practice. In order to construct such a data matrix, one has to use some other sep. procedures. Moreover, the test spectral vector necessary for target transformation may not be available. To overcome the aforementioned limitations, a new method is proposed combining std. addn., matrix projection and iterative target transformation. It can be used to detect the unknown background interference and make it possible to apply ordinary multivariate calibration methods to quant. anal.

L20 ANSWER 79 OF 221 CA COPYRIGHT 2001 ACS
AN 112:111276 CA
TI Elimination of interferences in spectral data
AU Lacey, Richard F.
CS Hewlett-Packard Lab., Palo Alto, CA, 94303-0971, USA
SO Appl. Spectrosc. (1989), 43(7), 1135-9
AB A general-purpose method for eliminating one or more interferences from spectra in a completely objective way is described. The method, called least-squares subtraction, depends only on the linearity of the spectra and the linear independence of the analyte's spectrum from those of the interferences. The spectrum that results after correction is modified from the spectrum of the pure analyte, but it can still be used for quantitation and identification. Because of this modification, the method is best applied to problems where the presence of the analyte is obscured by the interferences, or when fast, automatic removal of one or more time-varying interferences from a series of spectra is required. The method is illustrated by the removal of a strong interference from the attenuated total reflectance measurement of the IR spectrum of an enzyme-substrate complex and the removal of a changing chromatog. baseline from the output of a liq. chromatograph's diode array detector.

L20 ANSWER 84 OF 221 MEDLINE
AN 90077385 MEDLINE
TI A fast determination of serum bilirubin with the interference from hemolysis and turbidity by three wavelength spectrophotometry.
AU Chai H; Dong Y H
SO HUA-HSI I KO TA HSUEH HSUEH PAO [JOURNAL OF WEST CHINA UNIVERSITY OF

MEDICAL SCIENCES], (1989 Jun) 20 (2) 223-5. Journal code: GEB; 8609552. ISSN: 0257-7712.

AB In determination of bilirubin in serum by means of color reaction when hemolysis and turbidity are present, the reliability of the measurement is decreased by the interference from hemoglobin and other turbidities. Direct measurement of bilirubin in serum by three wavelength spectrophotometry at 500 nm, 450 nm and 370 nm instead of by color reaction, provides a fast, semi-micro and accurate way without the use of any reagents. Besides the rise of the baseline by blood cells and turbidities can be corrected without the consideration of hemolysis. Under the given experimental condition, the mean recovery is 96.3 +/- 2.41% (n = 6), coefficient of variation (CV) is 4.0%.

L20 ANSWER 96 OF 221 CA COPYRIGHT 2001 ACS

AN 109:3281 CA

TI Quantitation of hemoglobin with the vision analyzer by use of the alkaline hematin reaction

AU Pesce, Michael A.; Giacomo, Donald F.

CS Columbia Presbyterian Med. Cent., Columbia Univ., New York, NY, 10032, USA

SO Ann. Clin. Lab. Sci. (1988), 18(2), 168-73 CODEN: ACLSCP; ISSN: 0091-7370

AB Blood is drawn into capillary tubes contg. saponin and the tubes placed into the reagent packs. Hb is denatured by mixing the hemolyzate with a reagent contg. lithium hydroxide and a nonionic detergent. The absorbance is measured bichromatically at wavelengths of 577 and 633 nm. The calibration curve is stable and can be stored for at least 30 days. There are no interferences from fetal Hb, glycosylated Hb (20%), Hb S, samples with hematocrits up to 0.55, paraproteins, and lipemia. Specimens with rouleau formation, nucleated and fragmented red blood cells, target cells, ovalocytes, tear-drop cells, spherocytes, leukocyte counts of 29 x 109 per L, reticulocyte counts of 0.32 or Howell-Jolly bodies did not interfere with the assay. The within-run and between-run precision gave av. coeff. or variations of 2.3 and 1.9%, resp. Comparison of the Hb results obtained in samples with the Vision (y) and Coulter Counter System (x) gave r = 0.987, y = 1.01x - 1.89 g per L.

L20 ANSWER 98 OF 221 CA COPYRIGHT 2001 ACS

AN 108:109068 CA

TI Direct spectrophotometry of bilirubin in serum of the newborn, with use of caffeine reagent

AU Vink, Kees L. J.; Schuurman, Wim; Van Gansewinkel, Riejean

CS Dep. Clin. Chem., St. Joseph Ziekenhuis, Eindhoven, 5600 ML, Neth.

SO Clin. Chem. (Winston-Salem, N. C.) (1988), 34(1), 67-70

AB The caffeine reagent (Vink, K. L. J. et al., 1986) was used in setting up a bilirubin method for serum from neonates. This resulted in a 2-wavelength (465 and 528 nm) equation that fully corrects for HbO2 interferences. In combination with a bilirubin std., this equation may be transformed into a simple relative formula for use with this simple diln. method. This 2-wavelength method was studied with neonate sera, comparing results with those by both the diazo method of B. T. Doumas et al. and the borate method of H. Hertz et al. (1974). This new method is independent of hemolysis and of the matrix of the sera. Therefore, it is very suitable for use in neonatol.

L20 ANSWER 106 OF 221 CA COPYRIGHT 2001 ACS

AN 104:161305 CA

TI Correction method for ultraviolet spectrophotometry of turbid systems: determination of N-polyethoxylated alkyl amide in clay supernatant

AU Lin, John T.; Cornell, Donald G.

CS East. Reg. Res. Cent., Agric. Res. Serv., Philadelphia, PA, 19118, USA
SO Anal. Chem. (1986), 58(4), 830-3
AB Quant. UV anal. for water-sol. compds. in clay supernatant is complicated by interferences (light scattering of colloidal materials and specific absorption of impurities leached from clay particles). A combination of a turbidity extrapolation and a double-wavelength correction (DWC) is proposed to correct the interferences. In most cases, the correction method gives accurate results for polyethoxylated alkyl amides in a cation-exchanged montmorillonite suspension. The extrapolation method for turbidity correction alone eliminates only a small portion of the background interference in a Na+-montmorillonite system, but a large portion of the background interference in an Al3+-montmorillonite system. The situation for Mg2+-montmorillonite is in between. Sequentially, a DWC method is used, which assumes that the absorbance ratio at 2 wavelengths for the impurities (regarded as an integrated component) is independent of surfactant concn. By this assumption, a surfactant-free system can be used to find the parameter required in solving simultaneous equations to give a correct surfactant absorbance. A combination of extrapolation and DWC is justified, since a small value of the error induced in the surfactant absorbance is found theor. from an error propagation formula, as well as from the exptl. results. This method is particularly useful in turbid systems having an absorption band in the very short wavelength region.

L20 ANSWER 107 OF 221 CA COPYRIGHT 2001 ACS
AN 104:203297 CA
TI Measurement of urinary 3-methylhistidine with cationic-exchange resin
AU Fitch, Wendy Lewin; Watson, Joseph E.; King, Janet C.
CS Dep. Nutr. Sci., Univ. California, Berkeley, CA, 94720, USA
SO Anal. Biochem. (1986), 154(2), 632-7
AB A simple method is presented for measurement of urinary 3-methylhistidine (3MH) using a cationic exchange resin treatment followed by colorimetric anal. Equations are given to correct for the interference by histidine (4.3% by mole) in the colorimetric anal. This correction is esp. important for measurement of urinary 3MH in pregnant women or in other subjects with elevated histidine excretion. Good recovery of added std. and good reproducibility of results are documented. Preliminary data from a study of pregnant women are reported, suggesting an increased excretion of 3MH during pregnancy. Large day-to-day variability of 3MH excretion was obsd. within subjects. It is recommended that repeated measurements be done on each subject when detg. 3MH excretion.

L20 ANSWER 113 OF 221 CA COPYRIGHT 2001 ACS
AN 104:182819 CA
TI Hemolysis as an influence and interference factor in clinical chemistry
AU Guder, W. G.
CS Munich, Fed. Rep. Ger.
SO J. Clin. Chem. Clin. Biochem. (1986), 24(2), 125-6
AB Interferences in clin. chem. anal. due to hemolysis are discussed with respect to mechanisms of hemolysis (in vivo or in vitro) and mechanisms of interference (optical interference in spectrophotometric methods due to Hb or biochem. interference due to release of intracellular constituents other than Hb). Suggestions are also given for preventing hemolysis and handling hemolytic samples (e.g., standardization of the preanal. phase, blanking, deproteinization, changing the type of reagent).

L20 ANSWER 117 OF 221 CA COPYRIGHT 2001 ACS
AN 103:156820 CA
TI Hemoglobin interference from in vivo hemolysis

AU Blank, David W.; Kroll, Martin H.; Ruddel, Mark E.; Elin, Ronald J.
CS Clin. Cent., Natl. Inst. Health, Bethesda, MD, 20205, USA
SO Clin. Chem. (Winston-Salem, N. C.) (1985), 31(9), 1566-9
AB To study the interference of in vivo hemolysis in detns. of various clin. analytes in patients with paroxysmal nocturnal hemoglobinuria and related disorders, increasing amts. of purified Hb were added (to a max. concn. of 19.3 mg/L) to aliquots of pooled serum samples. In contrast to studies of in vitro hemolysis, far fewer tests were affected by Hb per se. Hb significantly interfered with the detn. of only 5 analytes: albumin, aspartate aminotransferase, direct bilirubin, and total protein on the SMAC, and creatinine on the Astra. For cases of proven intravascular hemolysis, it is proposed that values for only the analytes not affected by Hb should be reported and any patient with in vivo hemolysis should have aspartate aminotransferase, direct bilirubin, albumin, total protein (SMAC), and creatinine (Astra-8) detd. with an analyzer that is unaffected by the presence of Hb, e.g., creatinine detd. with the SMAC. Lactate dehydrogenase activity is useful in assessing the components of in vivo hemolysis; the differences between serum and plasma values for K, lactate dehydrogenase, and Hb are related to in vitro hemolysis. Criteria for specimen collection and assessment of type of hemolysis are proposed.

L20 ANSWER 119 OF 221 CA COPYRIGHT 2001 ACS
AN 103:205074 CA
TI Near infrared analysis
AU Honigs, David E.
CS Dep. Chem., Univ. Washington, Seattle, WA, 98195, USA
SO Anal. Instrum. (N. Y.) (1985), 14(1), 1-62 CODEN: ANINE6; ISSN: 0743-5797
AB A review with 184 refs. Near-IR anal. (NIRA) is an anal. technique which uses the diffuse reflectance of a sample to det. spectrophotometrically the chem. concns. or phys. properties of a sample. Because NIRA uses a series of multiple linear regressions to deduce automatically corrections for background or sample-matrix interferences, it can analyze many sample types that would be difficult by another spectroscopic technique. An automatic correction of interferences allows NIRA to operate independently of fully understood chem. or spectroscopy. The practical considerations involved in developing and utilizing NIRA are listed and defined and current applications are presented. Among the considerations addressed are selecting the analyte, choosing training samples, and creating a calibration. Throughout each discussion the advantages of NIRA are detailed.

L20 ANSWER 126 OF 221 CA COPYRIGHT 2001 ACS
AN 101:182714 CA
TI Statistical correction for interferences in analysis of multicomponent mixtures by using absorption spectra
AU Grachev, I. D.; Salakhov, M. Kh.; Fishman, I. S.
CS USSR
SO Zh. Prikl. Spektrosk. (1984), 41(1), 110-16 CODEN: ZPSBAX; ISSN: 0514-7506
AB An improved method for taking into account the spectra of interfering components is based on statistical regularization. The method involves the use of a block stabilizer for taking into account a priori information on the random vector of interfering spectra with 2 independently selected regularization parameters. The effectiveness of the proposed algorithm was demonstrated on examples of simulated multicomponent spectra.

L20 ANSWER 143 OF 221 MEDLINE
AN 82251227 MEDLINE
TI "Pseudo-hemolytic" transfusion reaction caused by intravenous iron-dextran

therapy.
AU Simon S D; Kuriyan M A; Kim H C
SO TRANSFUSION, (1982 Jul-Aug) 22 (4) 341-2.
AB Intravenous iron-dextran therapy can cause a red-brown discoloration of the plasma, simulating a hemolytic transfusion reaction. A rapid and simple test to differentiate between true hemolysis and plasma discoloration due to circulating iron-dextran complexes is described.

L20 ANSWER 144 OF 221 CA COPYRIGHT 2001 ACS
AN 96:177272 CA
TI Modified Dupont aca calcium method for hemolyzed specimens
AU Haas, Ronald G.; Mushel, Sandra
CS Marshfield Clin., St. Joseph's Hosp., Marshfield, WI, USA
SO Am. J. Clin. Pathol. (1982), 77(2), 216-19
AB The presence of Hb in serum or plasma causes an increase in the apparent Ca concn. when this detn. is performed on the DuPont Automatic Clin. Analyzer (aca). A simple pack modification is described which uses EGTA and which permits estn. of the pos. interference due to Hb color. A correction factor is applied to enable the accurate measurement of Ca in hemolyzed samples. EGTA has no inhibitory effect on several other aca tests.

L20 ANSWER 162 OF 221 CA COPYRIGHT 2001 ACS
AN 91:119955 CA
TI Colorimetric methods
IN Sagusa, Hisayuki; Nomura, Mito; Yabe, Ryohei
PA Hitachi, Ltd., Japan
SO Ger. Offen., 30 pp.
PI DE 2847176 A1 19790607 DE 1978-2847176 19781030
US 4263512 A 19810421 US 1978-956354 19781031
PRAI JP 1977-129602 19771031
AB A colorimetric method for anal. of blood is described which corrects for the presence of interfering chromogens, such as Hb from hemolysis or bilirubin from jaundice, and for chyle turbidity. As examples, the detns. of cholinesterase, alk. phosphatase, leucine aminopeptidase, and triglycerides in a human blood sample using a 2-wavelength technique with and without correction for chyle turbidity, hemolytic, and jaundice factors are presented.

L20 ANSWER 174 OF 221 CA COPYRIGHT 2001 ACS
AN 89:86661 CA
TI Rapid determination of total plasma tocopherols in the presence of carotenes
AU Jakutowicz, Konstancja; Tomicki, Zenon; Ubysz, Leokadia
CS Inst. Fizjol. Zwierzat, Szk. Gl. Gospod. Wiejsk.-Akad. Roln., Warsaw, Pol.
SO Pol. Arch. Weter. (1977), 20(3), 45-57 CODEN: PARWAC; ISSN: 0079-3647
AB The method described for detg. tocopherol in blood plasma is based essentially on previously published techniques. It consists of the pptn. of plasma proteins with alc., and extn. of tocopherol and carotenes with petroleum ether. Carotenes are detd. spectrophotometrically in the ether ext. by measuring their absorption at 450 nm. Tocopherol is reacted with either α,α-dipyridyl and FeCl3 or 4,7-diphenyl-1,10-phenanthroline and absorption measured at 520 and 534 nm, resp. Corrections for carotene interference in the tocopherol detn. were made using a modification of the method of S. A. Hashim and G. R. Schuttringer (1966) which involves using a set of regression equations calcd. on the basis of transmission measurements for a series of std. β-carotene and α-tocopherol solns.

L20 ANSWER 185 OF 221 CA COPYRIGHT 2001 ACS

AN 78:40034 CA
TI Hemoglobin pigments. Photometer for oxygen saturation, carboxyhemoglobin, and methemoglobin in capillary blood
AU Rem, Joergen; Siggaard-Andersen, Ole; Noergaard-Pedersen, Bent; Soerensen, Soeren
CS Dep. Clin. Biochem., Rigshosp., Copenhagen, Den.
SO Clin. Chim. Acta (1972), 42(1), 101-8
AB The photometer utilizes 2 interference filters (504 and 600 nm) and a new microcuvette consisting of a flat glass capillary tube with a light path of 0.176 mm. The cuvette is thermostatted (37°) and placed immediately in front of the photocell, thereby reducing the sensitivity to turbidity. O satn. is measured on hemolyzed whole blood. Carboxyhemoglobin is measured in the dithionite-reduced blood, methemoglobin in the completely oxygenated sample. A nomogram which empirically corrects for deviations from Beer's law is constructed.

L20 ANSWER 187 OF 221 CA COPYRIGHT 2001 ACS
AN 76:109924 CA
TI Effect of heme pigments on the chemical and spectrophotometric determination of bilirubin in amniotic fluid
AU Kapitulnik, J.; Kaufman, A. N.; Blondheim, S. H.
CS Jerusalem, Israel
SO Ann. Ostet. Ginecol. (1971), Volume Date 1970, 92(8), 506-7 CODEN: AOGIAI
AB Marked discrepancies were found between the clin. condition of the fetus and the absorbance difference (ΔA) at 450 mμ in brown tinted fluids. The brown tinting in the amniotic fluid (AF) was due to metheme pigments. When increments of methemoglobin were added up to 150 mg/ml to an AF contg. 0.2 mg/100 ml bilirubin, the original ΔA of 0.098 (diazo method) progressively decreased to a neg. value of -0.334. Hb interfered with the diazo reaction in serum. If a fresh hemolyzate of erythrocytes was added to an AF contg. bilirubin, the diazo reaction decreased, while the ΔA at 450 mμ remained const. The results of the modified diazo method and the spectrophotometric method showed a significant correlation. The chem. method was simple and applicable in most cases. Spectrophotometry was preferable when the fluid was contaminated with hemolyzed blood.

L20 ANSWER 193 OF 221 CA COPYRIGHT 2001 ACS
AN 68:36601 CA
TI New correction factors for spectrophotometric assay of erythrocyte porphyrins
AU Mingioli, Elizabeth S.
CS Emory Univ., Atlanta, Ga., USA
SO Anal. Biochem. (1968), 22(1), 47-53
AB A reliable and convenient spectrophotometric method for the assay of uroporphyrin, coproporphyrin, and protoporphyrin is described. Equations were derived which correct for impurities isolated with the porphyrins from red cell hemolyates. The need for extensive purification of the porphyrin solns. was eliminated.

L20 ANSWER 196 OF 221 CA COPYRIGHT 2001 ACS
AN 68:10078 CA
TI Erythrocyte substitute for perfusion of brain
AU Sloviter, Henry A.; Kamimoto, Toshiharu
CS Sch. of Med., Univ. of Pennsylvania, Philadelphia, Pa., USA
SO Nature (London) (1967), 216(5114), 458-60 CODEN: NATUAS
AB A liquid fluorocarbon designated as FX-80 (composed predominantly of perfluorobutyltetrahydrofuran and its isomers) was mixed with a simulated blood plasma (8% bovine serum albumin in Krebs-Ringer bicarbonate buffer)

and the mixt. sonicated. FX-80 was dispersed uniformly into particles which were about 2-3 μ in diam.; the dispersion was stable. The elec. activity and some metabolic functions of the isolated rat brain perfused with the FX-80 were measured and compared with results obtained with an identical prepn. perfused with a suspension of washed dog erythrocytes in the same bovine albumin soln. which was used to prep. the dispersion. The FX-80 dispersion and the suspension of erythrocytes in bovine albumin soln., both with an initial glucose concn. of 200 mg./100 ml., were equally effective in maintaining the elec. activity of the brain; the changes with time in the glucose and lactate concn. of the perfusion fluid were similar with either fluid. Calcd. values for both glucose consumption and lactate consumption were 30% more with the FX-80 perfusion fluid than with the erythrocyte suspension. The order of magnitude of the arteriovenous difference was similar with either perfusion fluid. The values for CO2 tension in the "arterial" fluid of all samples were 32-40 mm. and the "venous" samples were 9-15 mm. greater during the 1st hr., and this difference decreased to 2-7 mm. at the end of the 2nd hr.; there was almost no difference in these values whether the erythrocyte suspension or FX-80 dispersion was used as perfusion fluid. Therefore, FX-80 in dispersed form adequately carries out the essential functions of the erythrocyte, although the significant buffering capacity of the erythrocyte is lacking. Such dispersions may be used with equal success for perfusion of other organs, the advantages over perfusion with erythrocyte suspensions being the absence of hemolysis, the absence of Hb or other pigments to interfere with spectrophotometric or other measurements, usage during the presence of agents which are toxic to the erythrocyte, and usage during conditions of temp. or pH in which the erythrocyte cannot be used.

L20 ANSWER 198 OF 221 CA COPYRIGHT 2001 ACS
OREF 65:9324a-c
TI A simple spectrophotometric method for quantitating hemoglobin in serum or plasma
AU Martinek, Robert G.
CS Clin. Chem. Lab., Iowa Methodist Hosp., Des Moines
SO J. Am. Med. Technologists (1966), 28(1), 42-58
AB The method utilizes measurement of the absorbance of oxyhemoglobin at the Soret band, 412-15 mμ. A correction is made for bilirubin interference based on the fact that bilirubin absorbance at 412-15 mμ is 80% of its peak absorbance at 455-57 mμ. Peak absorbances vary in different spectrophotometers and are first detd. by wavelength calibration of the spectrophotometer with standard hemoglobin and bilirubin samples. One ml. of 0.9% NaCl, pH 5-7, is mixed with 0.1 ml. of fresh serum or plasma at 24-27°. The pigment is stable for at least 24 hrs. Absorbances at the peak wavelengths are measured. Fasting blood samples are mandatory, hemolysis must be avoided, and dry heparin is the preferred anticoagulant. No correction is necessary for methemalbumin. Urine hemoglobin cannot be detd. by the method. Reliability has been established by comparison with a benzidine method (Hanks, et al., CA 54, 22809b). The method appears to be the fastest and simplest assay of extra-cellular hemoglobin. 19 references.

L20 ANSWER 210 OF 221 CA COPYRIGHT 2001 ACS
OREF 53:2338a
TI Spectrophotometric method for the determination of Evans blue dye in the presence of hemolysis and turbidity
AU Hamilton, Lyle H.
CS Wood Veterans Admin. Hosp., Milwaukee, WI
SO J. Lab. Clin. Med. (1958), 52, 762-7
AB A method is described for correcting of interference in spectrophotometric

Evans blue dye detns. caused by hemolysis and (or) lipemia.

L20 ANSWER 211 OF 221 CA COPYRIGHT 2001 ACS
OREF 50:16948e-g
TI Spectrophotometric determination of Geigy 536 Blue in plasma. A method for measuring blood volume
AU De Candia, Giuseppe; Confortini, Piero
CS Univ. Padua, Italy
SO Chir. e patol, sper. (1956), 4, 325-33
AB After stressing the interference of hemolysis and turbidity in detg. color in blood plasma, the authors suggest measuring light extinction E at 540, 616, and 800 mμ, and calcg, the color concn. X (in mg./l.) by the formula X = 38.772E616 - 0.4068 E540 - 45.3744E800 - 0.8046. Blood vol. is measured by injecting 30 mg. dye, taking 3 cc. blood after 10 min., adding an anticoagulant, centrifuging, making 1 cc. plasma to 3 cc. with physiol. soln., measuring E and calcg. X as above. Plasma vol. was calcd. by the formula PV = (30 X) × 1000, and blood vol. by the formula (P V × 100):(100-Ht), where Ht is the hematocrit.

L20 ANSWER 217 OF 221 CA COPYRIGHT 2001 ACS
OREF 42:7361b-d
TI Quantitative determination of bilirubin in urine
AU Golden, Walter R. D.; Suavely, John G.
SO J. Lab. Clin. Med. (1948), 33, 890-903
AB To 1 ml. of urine in a colorimeter tube, 8 ml. of 95% EtOH and 1 ml. of freshly prepd. Ehrlich's diazo reagent are successively added. After 30 min., 0.25 ml. of concd. HCl is added. The optical d. of bilirubin is calcd. from the equation: Y (at 575 mμ) = 1.05 × observed optical d. (at 575 mμ) - 0.202 × observed optical d. (at 450 mμ); Y × 6.2 = mg. % bilirubin. The equations are derived in detail. Application of the correction equation eliminates interference of nonbilirubin materials.

L20 ANSWER 218 OF 221 CA COPYRIGHT 2001 ACS
OREF 41:168b-e
TI Utilization of a color correction equation with the Kober reagent for the estimation of the estrogens in human urine with low estrogen content
AU Stimmel, Benjamin F.
CS Rees-Stealy Med. Research Fund, Ltd., San Diego, CA
SO J. Biol. Chem. (1946), 165, 73-80
AB In satisfactory Kober tests (i.e., an L-520 mμ to L-420 mμ ratio greater than 3), for detn. of estrone and estriol in urine, a brown color is produced with the Kober reagent by nonestrogenic chromogens when the urine has a low estrogenic titer. This causes overestn., but can be corrected by using the equation Cx = L-520 mμ mixt. - Bx (L-420 mμ mixt.)/Kx(1 - AxBx) when Cx is the wt. of the estrogen component of the test in γ, L is 2 - log of galvanometer reading, Ax is the ratio of L-420 mμ to L-520 mμ for Kober color test, Bx is the ratio of L-520 mμ to L-420 mμ for interfering chromogens, and Kx is the calibration const. for the Kober test on pure estrogen. The variations in spectrophotometric characteristics (at 420 and 520 mμ) of the brown color produced by the Kober reagent with chromatographic filtrate residues from estrogen-free urines were studied, and sufficient exptl. data were obtained to evaluate the above consts. The overestn. in a 24-hr. urine specimen is reduced to ±7 γ of estrone, ± 10 γ of estradiol, and ±5 γ of estriol. It is recommended that the color-correction equation be used whenever there is a L-520 mμ to L-420 mμ ratio less than 6.0. This method is sufficiently sensitive to indicate the mid-menstrual elevation of estrogen excretion in a normal female menstrual cycle.

```
=> log y
STN INTERNATIONAL LOGOFF AT 10:45:41 ON 13 JUN 2001

=> d his

     (FILE 'HOME' ENTERED AT 13:16:20 ON 13 JUN 2001)
     FILE 'CA' ENTERED AT 13:17:07 ON 13 JUN 2001
L1    680 S (CROSSLINK? OR CROSS LINK?)(2A)(HEMOGLOB? OR HAEMOGLOB?)
L2     39 S L1(6A)(DETECT? OR DETERMIN? OR MEASUR? OR MONITOR? OR ASSAY? OR
          ANALY? OR TEST? OR QUANIF? OR ESTIMAT? OR SENSE# OR SENSOR OR SENSING
          OR IDENTIF? OR PROBE# OR PROBING)
L3     24 S L2 NOT PY>1997
L4     15 S L2 NOT L3
L5      2 S L4 AND INTERFERENCE/TI
     FILE 'BIOSIS' ENTERED AT 13:25:17 ON 13 JUN 2001
L6     25 S L3
     FILE 'MEDLINE' ENTERED AT 13:26:03 ON 13 JUN 2001
L7     23 S L3
     FILE 'CA, BIOSIS, MEDLINE' ENTERED AT 13:26:31 ON 13 JUN 2001
L8     41 DUP REM L3 L5 L6 L7 (33 DUPLICATES REMOVED)

=> d bib,ab l8 1-41

L8   ANSWER 1 OF 41  CA  COPYRIGHT 2001 ACS
AN   130:356975  CA
TI   Multiple regression analysis of interference effects from a
     hemoglobin-based oxygen carrier solution
AU   Kazmierczak, Steven C.; Catrou, Paul G.; Best, Ann E.; Sullivan, Steven W.;
     Briley, Kimberly P.
CS   School Medicine, Department Pathology Laboratory Medicine, East Carolina
     University, Greenville, NC, 27858, USA
SO   Clin. Chem. Lab. Med. (1999), 37(4), 453-464 CODEN: CCLMFW; ISSN: 1434-6621
AB   The use of Hb-based O carrier solns. in patients requiring blood
     transfusion will necessitate that clin. labs. have mechanisms in place to
     evaluate the potential interference effect of these substances on testing
     methods. Because these O carrier solns. contain acellular Hb, but do not
     contain many of the intracellular enzymes and ions present in erythrocytes,
     interference effects from blood substitutes may be quite different when
     compared to in vivo or in vitro lysis of erythrocytes. The authors
     evaluated the potential interference effect of diaspirin cross-linked Hb on
     29 different clin. lab. analytes. Various combinations of these analytes
     were tested using the Hitachi 747 and 911 systems, a Beckman CX3, an Abbott
     AxSym, a Bayer Immuno I, and a Dade ACA IV; a total of 60 analyte/instru-
     ment combinations. The authors used the method of multiple regression
     anal. to classify interferences as analyte-dependent, analyte-independent,
     or a combination of the 1st 2 types. The presence of clin. significant
     test interference was derived by the criteria for max. allowable error
     specified in the Clin. Lab. Improvement Amendments of 1988. Using these
     criteria, the authors found interference from diaspirin cross- linked Hb
     with 13/29 analytes tested. Interference was noted with the Hitachi 747
     and 911 methods for albumin, alk. phosphatase, total and conjugated
     bilirubin, cholesterol, total CO2, Fe, lactate dehydrogenase, Mg, total
     protein, and triglyceride. Diaspirin cross-linked Hb interfered with
     measurement of L-lactate using the ACA IV and minor interference was noted
     with glucose measured using the Beckman CX3. Data from the interference
     studies was graphically displayed in the form of interference plots. These
     plots show the max. allowable test error, due to diaspirin cross-linked Hb,
     as a function of analyte and interferent concns. Evaluation of the
```

potential interference effect of Hb-based O carrier solns. with use of multiple regression anal. and graphical display of the resultant data in the form of interference plots allows for more reliable reporting of test results from specimens contg. these products.

L8 ANSWER 2 OF 41 CA COPYRIGHT 2001 ACS
AN 130:78425 CA
TI Simplified interpretative format for assessing test interference : studies with hemoglobin-based oxygen carrier solutions
AU Kazmierczak, Steven C.; Catrou, Paul G.; Boudreau, Donald
CS Department of Pathology and Laboratory Medicine, East Carolina University School of Medicine, Greenville, NC, 27858-4354, USA
SO Clin. Chem. (Washington, D. C.) (1998), 44(11), 2347-2352
AB Substances such as Hb that interfere with anal. processes are recognized as a frequent source of error in lab. medicine. Std. guidelines for assessment of test interferences assume that interference effects are not related to the concn. of the analyte being measured. However, previous investigations have demonstrated that interference effects can be markedly different, depending on the concns. of interferent and analyte within the specimen. An exptl. protocol for investigating these different types of interference effects has been developed. This protocol utilizes an orthogonally arranged matrix with progressively increasing concns. of analyte and interferent. Evaluation of the measured analyte concns. in specimens within the matrix using multiple regression anal. allows the magnitude, direction, and significance of each type of interference to be detd. Unfortunately, implementation of the interference data derived from the multiple regression anal. for judging the clin. acceptability of test results when an interferent is present is difficult. We describe a two-dimensional graphical format for evaluating the clin. acceptability of test results, based on criteria established under the Clin. Lab. Improvement Amendments of 1988, in specimens contg. Hb-based oxygen carrier solns.

L8 ANSWER 6 OF 41 CA COPYRIGHT 2001 ACS
AN 127:316498 CA
TI Evaluation of HemogloBind for removal of o-raffinose cross-linked hemoglobin (Hemolink) from serum
AU Balion, Cynthia M.; Champagne, Patricia A.; Ali, Arlene C. Y.
CS Hemosol Inc., Etobicoke, ON, M9W 4Z4, Can.
SO Clin. Chem. (Washington, D. C.) (1997), 43(9), 1796-1797
AB HemogloBind is an insol. anionic polyelectrolyte manufd. by Ligo-Chem (Fairfield, NJ). The application of HemogloBind for the removal of Hemolink would reduce the potential for interference in lab. methods. The objective of this study was to evaluated the efficiency of HemogloBind in removing Hemolink and Hb from serum.

L8 ANSWER 7 OF 41 CA COPYRIGHT 2001 ACS
AN 127:304964 CA
TI Interference of o-raffinose cross-linked hemoglobin with routine Hitachi 717 assays
AU Ali, Arlene C. Y.; Campbell, Janet A.
CS Hemosol Inc., Etobicoke, ON, M9W 4Z4, Can.
SO Clin. Chem. (Washington, D. C.) (1997), 43(9), 1794-1796
AB This paper presents the results of a study that examd. the effects of a Hb-based oxygen carrier (HBOC), O-raffinose cross-linked Hb (Hemolink) on selected routine assays on the Hitachi 717 analyzer.

=> log y
STN INTERNATIONAL LOGOFF AT 13:28:16 ON 13 JUN 2001